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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,531	04/25/2001	Hyon T. Kim	5181-83600	7257

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EXAMINER
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NGUYEN, HAI V

ART UNIT	PAPER NUMBER
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2142

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/842,531		KIM, HYON T.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Hai V. Nguyen		2142	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2006 and on 19 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-90 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-90 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office Action is in response to the communication received on 15 December 2006 and on 19 July 2006.
2. Claims 1-90 are presented for examination.
3. The pending related application #: 09/842,495, 09/842,596.
4. The related patent #: 6,920,491 B2 and #: 6,965,951 B2.

### *Response to Arguments*

5. Applicant's arguments and amendments received on 15 December 2006 and on 19 July 2006, with respect to the rejection(s) of claim(s) 1, 31, and 61 under Rejection(s) 35 USC 102(e) and 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Shah et al. US patents # 7,039,922 B1 and 6,887,380.

### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-29, 31-59 and 61-89 are rejected under 35 U.S.C. 102(e) as being anticipated by **Shah et al. US patent # 7,039,922 B1.**

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8. As to claim 1, Shah discloses substantially the invention as claimed, including a method for handling fabric state changes, comprising:

a host system (*Figs. 7, 8, 10, host 210 or 212 with administrator 720 with central fabric manager 710*) receiving from a fabric (*Figs. 7, 8, 10, fabric 202*) coupled to the host system an event indicating a fabric state change (*Figs. 7, 8, 10; fabric services 712 of the fabric manager 710 detecting I/O units for faults or link failures or device removal, col. 8, lines 48-50*) for one or more host adapter ports (*Fig. 2, I/O units 1 and 2*) of said host system (*the central fabric manager 710 may be configured for learning physical cluster topology, detecting and managing faults or link failures in the data network 200 (see FIG. 2) and performing other network management functions, such as, for example, assignment of fabric-attached I/O controllers to cluster hosts 210 and 212, programming of forwarding tables at cluster switches such that the redundancy built into the topology is mapped as multiple paths between cluster hosts 210 and 212 and fabric-attached agents (e.g., I/O controllers), and reporting of multiple paths between the cluster hosts 210 and 212 and the fabric-attached agents (e.g., I/O controllers), col. 8, lines 24-63; col. 9, line 64 – col. 10, line 12; col. 12, lines 27-50*); and

the host system dynamically changing the host system's fabric device configuration in response to said receiving an event (*At step 5 shown in FIG. 7, the I/O controller manager 7140 may send a message to the host-fabric adapter 325 of the host to which the new I/O controller has been assigned. This message to the host informs the host of the presence of the new I/O controller, and provides (explicitly or implicitly) authorization for the host to access the new I/O controller. In the event that an I/O controller has been*

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*removed from the cluster fabric 202 or has been reassigned to another host in the cluster fabric 202, a similar message may be sent to the host (the previous owner) indicating that the I/O controller is not available or is no longer assigned to the host. This allows the administrator and/or the I/O controller manager 714 to dynamically add, remove or reassign I/O controllers in the cluster fabric 202 and quickly inform the affected hosts of this change in the assignment or ownership of the fabric-attached I/O controllers, col. 9, line 30 – col. 10, line 62); wherein said host system dynamically changing comprises the host system bringing online (adding (inserting), initializing, assigning, and connecting (attaching)) or taking offline (removing or reassigning or detaching) one or more devices for the one or more host adapter ports for the host system (Figs. 7, 8, 10; col. 8, lines 24-63; col. 9, line 30 – col. 10, line 62; col. 12, lines 27-50).*

9. As to claim 2, Shah discloses, determining an event type for said event (*removal of the existing path due to an error or due to manual reconfiguration of the cluster fabric, col. 12, lines 43-45, col. 13, line 54*).

10. As to claim 3, Shah discloses, wherein if the event type indicates that one of the fabric host adapter ports has lost connectivity to the fabric, said dynamically changing comprises taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric (*Figs. 7, 8, 10; col. 8, lines 24-63; col. 9, line 30 – col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57*).

11. As to claim 4, Shah discloses, wherein said taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric

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comprises: reading a persistent repository (*looking up a database*) that indicates which fabric devices are currently online for the host adapter port that lost connectivity to the fabric; and taking offline (*removing*) the fabric devices indicated by the persistent repository for the host adapter port that lost connectivity to the fabric (*Figs. 7, 8, 10; col. 8, lines 24-63; col. 9, line 30 – col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57*).

12. As to claim 5, Shah discloses, wherein said taking offline comprises disabling an operating system node for each of the one or more fabric devices being taken offline, wherein each operating system node provides a communication mechanism to a corresponding fabric device (*Figs. 7, 8, 10; a message sent to the host (the previous owner) indicating that the I/O controller is not available or is no longer assigned to the host, col. 8, lines 24-63; col. 9, line 30 – col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57*).

13. As to claim 6, Shah discloses, wherein if the event type indicates that one of the fabric host adapter ports has lost connectivity to the fabric, said dynamically changing comprises:

accessing a configuration file (*looking up a database, col. 9, lines 54-63*) for the host adapter port that lost connectivity to the fabric to determine if fabric devices for that host adapter port are to be unconfigured (*unassigned*) if that host adapter port loses connectivity to the fabric; and if the configuration file indicates that fabric devices are to be unconfigured upon lose of connectivity to the fabric, taking offline one or more fabric devices configured through the host adapter port that lost connectivity to the fabric (*Figs. 7, 8, 10; a message sent to the host (the previous owner) indicating that the I/O*

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*controller is not available or is no longer assigned to the host; col. 8, lines 24-63; col. 9, line 30 – col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57).*

14. Claim 7 has similar limitations of claim 4; therefore, it is rejected under the same rationale as in claim 4.

15. Claim 8 has similar limitations of claim 5; therefore, it is rejected under the same rationale as in claim 5.

16. As to claim 9, Shah discloses, prior to said receiving an event: a host adapter driver for one of the one or more host adapter ports becoming inactive or detached; and generating the event (*the message*) indicating that one of the one or more host adapter ports has lost connectivity to the fabric (*Figs. 7, 8, 10; step 5 in Figure 7; col. 8, lines 24-63; col. 9, line 30 – col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57*).

17. As to claim 10, Shah discloses, wherein said accessing a configuration file for the host adapter port that lost connectivity to the fabric comprises reading a user-defined attribute (*a MAC or network address*) in the configuration file, wherein the user-define attribute indicates whether or not fabric devices for that host adapter port are to be unconfigured (*unassigned*) if that host adapter port loses connectivity to the fabric (*Figs. 7, 8, 10; col. 8, line 24 - col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57*).

18. As to claim 11, Shah discloses, wherein if the event type indicates that one of the fabric host adapter ports has acquired connectivity to the fabric, said dynamically changing comprises bringing online one or more fabric devices for the host adapter port that has acquired connectivity to the fabric (*Figs. 7, 8, 10; step 2 in Figure 7, the fabric service 712 detects the new I/O controller attached to the cluster fabric 202 and assign*

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*a MAC or network address to the new I/O unit and initialize the I/O by setting the ports of the I/O unit 1 to an active state, col. 9, lines 35-42).*

19. As to claim 12, Shah discloses, wherein said bringing online one or more fabric devices for the host adapter port that has acquired connectivity to the fabric comprises: reading a persistent repository (*looking up the database*) that indicates which fabric devices were previously online for the host adapter port that has acquired connectivity to the fabric; and bringing online the fabric devices indicated by the persistent repository for the host adapter port that has acquired connectivity to the fabric (*Figs. 7, 8, 10; col. 8, line 24 - col. 10, line 62; col. 11, line 40 - col. 12, line 50; col. 13, lines 23-57*).

20. As to claim 13, Shah discloses, wherein said bringing online comprises creating an operating system node for each of the one or more fabric devices being brought online, wherein each operating system node provides a communication mechanism to a corresponding fabric device (*Figs. 7, 8, 10; the fabric bus driver 620 on the host 210 creates a separate device object for each port of the host-fabric adapter 325 that can be used to communicate with the target fabric-attached I/O controller, col. 8, line 24 - col. 10, line 62; col. 11, line 40 - col. 12, line 50; col. 13, lines 23-57*).

21. As to claim 14, Shah discloses, wherein if the event type indicates that one of the fabric host adapter ports has acquired connectivity to the fabric, said dynamically changing comprises: accessing a configuration file (*a database*) for the host adapter port that has acquired connectivity to the fabric to determine if fabric devices for that host adapter port are to be configured (*assigned*) if that host adapter port acquires connectivity to the fabric; and if the configuration file indicates that fabric devices are to



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be configured (*assigned*) upon that host adapter port's connectivity to the fabric, bringing online one or more fabric devices for that host adapter port that has acquired connectivity to the fabric (*Figs. 7, 8, 10; col. 8, line 24 - col. 10, line 62; col. 11, line 40 - col. 12, line 50; col. 13, lines 23-57*).

22. Claim 15 has similar limitations of claim 12; therefore, it is rejected under the same rationale as in claim 12.

23. Claim 16 has similar limitations of claim 13; therefore, it is rejected under the same rationale as in claim 13.

24. As to claim 17, Shah discloses, prior to said receiving an event: a host adapter driver for one of the one or more host adapter ports becoming active or attached; and generating the event (*the message*) indicating that one of the one or more host adapter ports has acquired connectivity to the fabric (*Figs. 7, 8, 10; step 5 in Figure 7; col. 8, line 24 - col. 10, line 62; col. 11, line 40 - col. 12, line 50; col. 13, lines 23-57*).

25. As to claim 18, Shah discloses, wherein said accessing a configuration file for the host adapter port that has acquired connectivity to the fabric comprises reading a user-defined attribute in the configuration file, wherein the user-define attribute indicates whether or not fabric devices for that host adapter port are to be configured if that host adapter port acquires connectivity to the fabric (*Figs. 7, 8, 10; col. 8, line 24 - col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57*).

26. As to claim 19, Shah discloses, wherein if the event type indicates that a new fabric device has been connected to the fabric, said dynamically changing comprises

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bringing online the new fabric device for one of the one or more host adapter ports  
(Figs. 7, 8, 10; col. 8, line 24 - col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57).

27. As to claim 20, Shah discloses, wherein said bringing online comprises creating an operating system node for the new fabric device being brought online, wherein the operating system node provides a communication mechanism to the new fabric device  
(Figs. 7, 8, 10; col. 8, line 24 - col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57).

28. As to claim 21, Shah discloses, wherein said bringing online the new fabric device comprises updating a persistent repository to indicate that the new fabric device is online for the host adapter port (Figs. 7, 8, 10; col. 8, line 24 - col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57).

29. As to claim 22, Shah discloses, wherein if the event type indicates that a new fabric device has been connected to the fabric, said dynamically changing comprises: accessing a configuration file for one of the one or more host adapter ports to determine if newly connected fabric devices for that host adapter port are to be dynamically configured; and if the configuration file indicates newly connected fabric devices are to be dynamically configured, bringing online the new fabric device for that host adapter port (Figs. 7, 8, 10; col. 8, line 24 - col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57).

30. Claim 23 has similar limitations of claim 20; therefore, it is rejected under the same rationale as in claim 20.

31. Claim 24 has similar limitations of claim 21; therefore, it is rejected under the same rationale as in claim 21.

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32. As to claim 25, Shah discloses, prior to said receiving an event: connecting the fabric device to the fabric; and a fabric driver generating the event (*the message*) indicating that the new fabric device has been connected to the fabric (*col. 9, line 30 - col. 10, line 62*).

33. As to claim 26, Shah discloses, wherein said accessing a configuration file comprises reading (*looking up*) a user-defined attribute in the configuration file, wherein the user define attribute indicates whether or not newly connected fabric devices for that host adapter port are to be dynamically configured upon detection (*Figs. 7, 8, 10; col. 8, line 24 - col. 10, line 62; col. 12, lines 27-50; col. 13, lines 23-57*).

34. As to claim 27, Shah discloses, wherein the one or more host adapter ports comprise Fibre Channel host adapter ports (*col. 14, lines 55-60*).

35. As to claim 28, Shah discloses, wherein the fabric comprises a Fibre Channel switched fabric comprising a plurality of Fibre Channel switches (*col. 14, lines 55-60*).

36. As to claim 29, Shah discloses, wherein the fabric is part of a storage area network (SAN), and wherein the fabric devices comprise storage devices (*col. 14, lines 55-60*).

37. Claim 31 is corresponding system claim of claim 1; therefore, it is rejected under the same rationale as in claim 1.

38. Claims 32-59 are similar limitations of claims 2-29; therefore, they are rejected under the same rationale as in claims 2-29.

39. Claim 61 is corresponding computer readable medium claim of claim 1; therefore, it is rejected under the same rationale as in claim 1.

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40. Claims 62-89 are similar limitations of claims 2-29; therefore, they are rejected under the same rationale as in claims 2-29.

***Claim Rejections - 35 USC § 103***

41. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

42. Claims 30, 60, 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Shah '922** as applied to claims 1-29 above, and further in view of **Shah et al. US patent # 6,887,380** (hereafter **Shah '380**).

43. As to claim 30, Shah '922 does not explicitly disclose, verifying the one or more, fabric devices before bringing the one or more fabric devices online, wherein said verifying comprises accessing a fabric name server to determine if the one or more fabric devices are currently connected to the fabric.

In the same field of endeavor, Shah '380 disclose the fabric control driver simply verifies that the local channel adapter is ready for connectivity and then loads the driver (*Shah '380. col. 9, lines 41-62; col. 10, lines 40-59, col. 11, lines 32-51*) for the purpose of *successfully loading host-side drivers in the data networks (Shah '380, col. 1, lines 38-40)*.

44. Claims 60, 90 introduce identical limitations of claim 30; therefore, they are rejected under the same rationale as in claim 30.

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45. Claim 31 is corresponding system claim of claim 1; therefore, it is rejected under the same rationale as in claim 1.

46. Claims 32-59 are similar limitations of claims 2-29; therefore, they are rejected under the same rationale as in claims 2-29.

47. Claim 61 is corresponding computer readable medium claim of claim 1; therefore, it is rejected under the same rationale as in claim 1.

48. Claims 62-89 are similar limitations of claims 2-29; therefore, they are rejected under the same rationale as in claims 2-29.

49. Further references of interest are cited on Form PTO-892, which is an attachment to this action.

### ***Conclusion***

50. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai V. Nguyen whose telephone number is 571-272-3901. The examiner can normally be reached on 6:00-3:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hai V. Nguyen  
Examiner  
Art Unit 2142



ANDREW CALDWELL  
SUPERVISORY PATENT EXAMINER